WHAT IS CLAIMED IS:

1. A nuclear camera system in which pixel data is scatter corrected prior to image processing comprising:

an acquisition subsystem which acts to acquire counts in the vicinity of a photopeak in multiple energy windows, including a scatter corrector which acts to correct for scatter in real time by mathematically combining the counts of the multiple energy windows; and

an image processor coupled to the scatter corrector which produces an image from scatter corrected count data.

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- 2. The nuclear camera system of Claim 1, wherein the acquisition subsystem acts to simultaneously acquire counts from multiple radionuclides producing emissions at different energy levels.
- 3. The nuclear camera system of Claim 2, wherein the radionuclide producing emissions at the higher energy level produces background scatter at the photopeak at the lower energy level.
- 4. The nuclear camera system of Claim 3, wherein the radionuclides are used in a stress study.
- 5. The nuclear camera system of Claim 4, wherein the radionuclides are Tc and Tl.
 - 6. The nuclear camera system of Claim 3, wherein the radionuclides are used in a lung perfusion study.

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- 7. The nuclear camera system of Claim 6, wherein the radionuclides are Tc and Xe.
- 5 8. The nuclear camera system of Claim 1, wherein the act of mathematically combining is an additive process.
- 9. The nuclear camera system of Claim 1,
 wherein the act of mathematically combining is a subtractive process.
 - 10. The nuclear camera system of Claim 1, wherein the scatter corrector acts to correct for scatter on a pixel by pixel basis.
 - 11. The nuclear camera system of Claim 1, wherein the multiple energy windows are overlapping.
- 20 12. The nuclear camera system of Claim 1, wherein the multiple energy windows occupy adjacent energy channels.
- 13. A method for performing a nuclear medicine
 25 lung perfusion study comprising:

applying a first carrier labeled with a first radionuclide to the blood flow system which becomes distributed in capillaries of the lungs;

applying a second carrier labeled with a second radionuclide to the lungs by inhalation; and

imaging both radionuclides simultaneously with a gamma camera.

14. The method of Claim 13, wherein the first carrier is macro-aggregated albumin.

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- 15. The method of Claim 14, wherein the first radionuclide is Tc.
- 5 16. The method of Claim 13, wherein the second carrier is a gas.
 - 17. The method of Claim 16, wherein the second radionuclide is Xe.

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- 18. The method of Claim 13, wherein imaging is performed while the second labeled carrier is being applied.
- 19. The method of Claim 13, wherein imaging comprises producing a first nuclear image of a radionuclide distributed in a lung on the basis of blood flow; and

producing a second nuclear image of a radionuclide distributed in a lung on the basis of aeration.